

43. On two new Larval Trematodes from the Striped Snake (*Tropidonotus ordinatus sirtalis*). By WILLIAM NICOLL, D.Sc., F.Z.S., Lister Institute of Preventive Medicine, London.

[Received April 9, 1912: Read May 21, 1912.]

(Text-figure 107.)

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The occurrence of encysted larval parasites in snakes is evidence, if such were wanting, that some snakes are eaten by other animals. What is more important, the character of the parasites may indicate what variety of animal is in the habit of eating the snake in question. Conversely, the presence of any particular species of adult parasite in an animal is almost always a sure proof that such animal eats the snake in which the larval stage is found. It is unfortunately in many cases a matter of difficulty to diagnose the systematic characters of a larval parasite. In a number of cases, however, it is possible to assign it to a definite genus, rarely to a particular species.

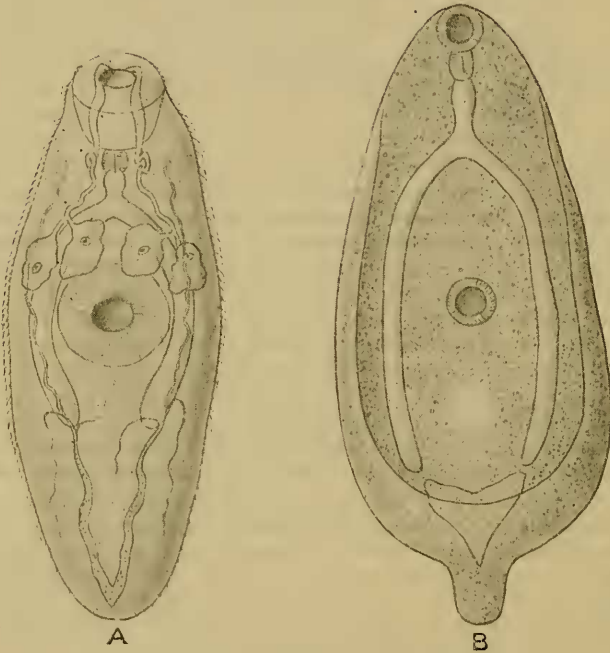
The two cases to be dealt with here present a certain amount of difficulty. The first larva is evidently a Distomate Trematode, but beyond that it is impossible to go; the second larva is just as obviously a Holostomid, and almost certainly belongs to the genus *Hemistomum*. Such a diagnosis does not lead very far, but it at least enables one to say that in all probability the Striped Snake (*Tropidonotus ordinatus*, var. *sirtalis*) is eaten by some bird, for adult Holostomata are known to occur only in birds. This will possibly be confirmed by direct observation.

Both forms were met with together in each of three Striped Snakes from North America, which died in the Society's Gardens on the 5th and 20th December, 1910, and on 10th March, 1911. They occurred in enormous numbers in the mesenteric fat along the whole length of the intestine. Each was enclosed in a small spherical or ovoid cyst with unusually thin and soft walls. Unlike what is generally found in a Trematode cyst, the wall gave the impression of being a thin membrane instead of the more usual tough chitinous investment. On this account, not only could the larvae be extracted from the cysts without difficulty, but when placed in water they escaped readily of their own accord. When a piece of the cyst-infested mesentery was

suspended in water, a continuous shower of larvæ was observed to fall to the bottom of the vessel.

The first form, which I name *CERCARIA ORDINATA*, sp. n. (text-fig. 107 A), was much more numerous than the other. It is a typical tailless encysted cercaria, about $\cdot 5$ mm. ($\cdot 4$ – $\cdot 55$ mm.) in length and $\cdot 2$ – $\cdot 25$ mm. in greatest breadth. In shape it is ovoid and flattened dorso-ventrally. The entire surface of the body is covered with minute regularly-arranged spines. The oral sucker is almost terminal and has a diameter of $\cdot 07$ mm. ($\cdot 06$ – $\cdot 08$ mm.).

Text-fig. 107.



A. *Cercaria ordinata*, sp. n. Ventral view, $\times 150$.

B. *Diplostomum sirtale*, sp. n. Ventral view, $\times 150$.

The length is usually slightly greater than the breadth, and the sucker has a somewhat characteristic funnel-shaped appearance. The globular ventral sucker is situated rather in front of the centre of the body, and has a diameter of $\cdot 083$ mm. ($\cdot 075$ – $\cdot 097$ mm.). Its distance from the anterior end of the body is on an average $\cdot 22$ mm. ($\cdot 17$ – $\cdot 25$ mm.). On the dorsal lip of the oral sucker are the two symmetrical apertures of the cystogenous ducts. The cystogenous glands are conspicuous structures, and consist of four

large cells situated in a transverse row immediately in front of the ventral sucker. There are two pairs, a right and a left. The ducts from each pair unite almost at once, and the united ducts then pass forward in an irregular course; but just before they reach the oral sucker each makes a characteristic twist, following which there is a gradual increase in calibre until near the termination, when they contract slightly again. The cystogenous glands have an irregular rectangular outline, and measure $\cdot048 \times \cdot037$ mm. In direct contact with the oral sucker is the small muscular pharynx measuring $\cdot024$ mm., which is continued by a short, somewhat dilated oesophagus of the same length as the pharynx. The intestinal bifurcation is about midway between the two suckers. The diverticula are simple, somewhat wide tubes, which terminate not far behind the ventral sucker (*i. e.* a third of the distance from the sucker to the posterior end of the body). The excretory vesicle is V-shaped. A common trunk is practically absent, and the limbs extend forward to near the terminations of the intestinal diverticula. The excretory tubules are very fine; the main tube on each side extends forward to near the oral sucker, where it turns back. The excretory aperture appears to be slightly dorsal.

No trace of other organs could be made out, so that no accurate idea can be obtained of the systematic position of this larva. The peculiar configuration of the excretory vesicle may, in conjunction with the shape of the alimentary canal, eventually lead to the identification of its adult form, but at present, so far as I am aware, there is no known adult Distome to which this larva can be ascribed.

The second form, which I name *DIPLOSTOMUM SIRTALE*, sp. n. (text-fig. 107 B), differs markedly from the first. It is about the same size, and occurs in somewhat similar cysts, but its shape and colour are entirely different. The body of *Cercaria ordinata* is light and transparent, whereas that of *Diplostomum sirtale* is dark and almost opaque. The opacity is due to the presence of innumerable small granules distributed throughout the whole body. The shape is that of a typical *Diplostomum* larva, being scoop-like with a short handle. The shape is due to the rolling over of the postero-lateral margins of the body. In life, however, these margins are capable of more or less eversion, so that on occasion the body may appear almost flat. The dimensions of this larva are $\cdot48\text{--}\cdot55 \times \cdot28\text{--}\cdot32$ mm., the short stumpy tail being $\cdot06$ mm. long.

The oral sucker measures $\cdot039$ mm. in diameter; the ventral sucker $\cdot042\text{--}\cdot045$ mm. The latter is situated a little in front of the middle of the body, $\cdot25\text{--}\cdot28$ mm. from the anterior end. Midway between it and the posterior end of the body occurs the characteristic Holostomid fixing disc, which appears as a transparent disc about the same size as the ventral sucker. Of the internal organs only the alimentary canal and excretory vesicle were visible. The former comprises a pharynx contiguous

with the oral sucker and measuring $\cdot 024 \times \cdot 020$ mm. This is followed by an oesophagus about twice as long as the pharynx. The intestinal bifurcation takes place rather nearer the ventral sucker than the oral sucker, and the simple diverticula extend a little beyond the posterior border of the fixing disc. The excretory vesicle consists of a wedge-shaped sac, which extends forward as far as the ends of the intestinal diverticula.

This is in all probability the larval stage of some species of *Hemistomum*, parasitic in a bird.

44. A Note on the rare British Nudibranch *Hancockia eudactylota* Gosse. By Sir CHARLES ELIOT, K.C.M.G., C.B., F.Z.S.

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(Plate LXXXV.)

See Gosse, On *Hancockia eudactylota*, Ann. Mag. Nat. Hist. ser. 4, xx. 1877, pp. 316-318; Gamble, On two rare British Nudibranchs, *Lomanotus genei* and *Hancockia eudactylota*, ib. ser. 6, ix. 1892, pp. 378-385; Trinchese, Ricerche anatom. sul genere *Govia* (= *Hancockia*), Mem. della R. Accad. delle Sci. dell' Istituto di Bologna, ser. 5, vii. pp. 183-191, 1886; Eliot, Supplement to Alder and Hancock's Monograph of the British Nudibranchiate Mollusca, Ray Society, 1910, pp. 17, 72, 118-120, 163.

No coloured figure of this rare British Nudibranch has yet been published so far as I am aware. I endeavoured to include one in my Supplement to Alder & Hancock's Monograph, but no specimen of the animal could be obtained before the time fixed for publication. Shortly afterwards a single individual was captured at Plymouth and drawn by a local artist under the supervision of the naturalists who were working in the Laboratory of the Marine Biological Association. I have not seen the animal alive, but these drawings agree with what is known of its structure, and I have no doubt that they faithfully reproduce its appearance.

For an account of the genus and species see the references to my Supplement given above.

EXPLANATION OF PLATE LXXXV.

Hancockia eudactylota.

- Fig. 1. Dorsal view of animal.
 2. Ventral view of animal.
 3. Side view of head.
 4. A rhinophore.
 5.)
 6.) Different views of lateral processes.
 7.)